

WEST Search History

DATE: Monday, March 06, 2006

<u>Hide?</u>	<u>Set Name</u>	<u>Query</u>	<u>Hit Count</u>
	<i>DB=PGPB,USPT; PLUR=YES; OP=ADJ</i>		
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<input type="checkbox"/>	L14	L11 and (wash motor)	1
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<input type="checkbox"/>	L11	control\$ with dishwasher	1526
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<input type="checkbox"/>	L7	L4 and (electrical characteristic\$)	1
<input type="checkbox"/>	L6	L4 with (electrical characteristic\$)	1
<input type="checkbox"/>	L5	L4 with determin\$	2
<input type="checkbox"/>	L4	L2 with motor	112
<input type="checkbox"/>	L3	L2 with (wash motor)	1
<input type="checkbox"/>	L2	L1 with (driv\$ or operat\$)	563
<input type="checkbox"/>	L1	control\$ with dishwasher	1214

END OF SEARCH HISTORY

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Search Results - Record(s) 21 through 26 of 26 returned.

☐ 21. Document ID: US 6432216 B1

Using default format because multiple data bases are involved.

L15: Entry 21 of 26

File: USPT

Aug 13, 2002

US-PAT-NO: 6432216

DOCUMENT-IDENTIFIER: US 6432216 B1

TITLE: Soil sensing system for a dishwasher

DATE-ISSUED: August 13, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Thies; Edward L.	Niles	MI		

US-CL-CURRENT: [134/18](#); [134/104.1](#), [134/172](#), [134/25.2](#), [134/56D](#), [134/57D](#), [134/58D](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 22. Document ID: US 5900070 A

L15: Entry 22 of 26

File: USPT

May 4, 1999

US-PAT-NO: 5900070

DOCUMENT-IDENTIFIER: US 5900070 A

TITLE: Automatic thermal input system for a dishwasher

DATE-ISSUED: May 4, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Jarvis; Wilbur W.	St. Joseph	MI		
Deming; Charles P.	Stevensville	MI		
Patera; Ginger E.	St. Joseph	MI		
Roth; Ryan K.	St. Joseph	MI		
Thies; Edward L.	Niles	MI		
Stady; Kathryn A.	Stevensville	MI		

US-CL-CURRENT: [134/18](#); [134/104.4](#), [134/108](#), [134/109](#), [134/25.2](#)

ABSTRACT:

A thermal input system is provided for a dishwasher having an interior wash chamber receiving soiled dishes and wash liquid. A heater is disposed in a sump region of the wash chamber along with a wash pump which operates to recirculate wash liquid through out the wash chamber. A soil collection chamber receives a portion of recirculating wash liquid from the wash pump wherein soils entrained in the wash liquid are captured within the soil collection chamber. A pressure sensor senses fluid pressure within the soil collection chamber. Control means are provided for energizing the heater during a thermal hold period in response to the pressure within the soil collector exceeding a predetermined limit pressure. In particular, the control means operates to sequence the dishwasher through a predetermined period of operation but bypasses the thermal hold cycle when the pressure within the soil collector does not exceed the predetermined limit pressure.

15 Claims, 4 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Assignments	Claims	KWIC	Draw. De
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☐ 23. Document ID: US 4735219 A

L15: Entry 23 of 26

File: USPT

Apr 5, 1988

US-PAT-NO: 4735219
DOCUMENT-IDENTIFIER: US 4735219 A

TITLE: Electronic appliance control with usage responsive default cycle

DATE-ISSUED: April 5, 1988

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Seeland; Rodney F.	Lincoln Township, Berrien County	MI		

US-CL-CURRENT: 134/56R; 134/18, 134/25.2, 134/57R

ABSTRACT:

In an appliance operable in any of a number of different cycles, selectable by a user, a default control selects a default cycle of operation of the appliance in an absence of a current user selection. The control counts the number of times each cycle is executed by the appliance and compares the relative magnitudes of the cycle counts to identify the cycle that currently is the "favorite". In the preferred embodiment, default cycles and options in a dishwasher are selected based upon prior patterns of usage.

24 Claims, 6 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 24. Document ID: US 4561904 A

L15: Entry 24 of 26

File: USPT

Dec 31, 1985

US-PAT-NO: 4561904

DOCUMENT-IDENTIFIER: US 4561904 A

**** See image for Certificate of Correction ****

TITLE: Control system and method of controlling a dishwashing machine

DATE-ISSUED: December 31, 1985

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Eberhardt, Jr.; Mark E.	Troy	OH		

US-CL-CURRENT: 134/18; 134/25.2, 134/57D, 134/72

ABSTRACT:

A control system and method of controlling a conveyor-type dishwasher is disclosed, with the dishwasher including a plurality of sequentially arranged work stations, each of the stations performing an operation on ware located therein such as washing, rinsing, drying and the like. A conveyor carries the ware into the dishwasher, past each of the stations, and out of the dishwasher. A sensor mounted at a reference point adjacent the conveyor near the entrance for ware to the dishwasher senses the presence of ware items on the conveyor as the items are carried past the reference point. Positional advance of the conveyor is monitored to define a current conveyor position and track movement of the items through the dishwasher. Controls responsive to the sensor start operations within each of the stations in response to movement of the conveyor sufficient to carry items from the reference point to the station, and stop operations in response to movement of the conveyor sufficient to carry the items from the station.

14 Claims, 37 Drawing figures

Exemplary Claim Number: 14

Number of Drawing Sheets: 32

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 25. Document ID: US 4331484 A

L15: Entry 25 of 26

File: USPT

May 25, 1982

US-PAT-NO: 4331484

DOCUMENT-IDENTIFIER: US 4331484 A

TITLE: Energy saving dishwashing method with heater control

DATE-ISSUED: May 25, 1982

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Helwig, Jr.; William F.	Downers Grove	IL	60516	

US-CL-CURRENT: 134/18; 134/25.2

ABSTRACT:

A control circuit for a dishwashing machine to economize its energy consumption and usage. In order to conserve energy, the dishwashing machine has a control system for automatically actuating the components such as the heating elements of the dishwashing machine.

1 Claims, 1 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KMIC	Draw D
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☐ 26. Document ID: US 4070204 A

L15: Entry 26 of 26

File: USPT

Jan 24, 1978

US-PAT-NO: 4070204

DOCUMENT-IDENTIFIER: US 4070204 A

TITLE: Low-energy dishwasher

DATE-ISSUED: January 24, 1978

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hardy; Albert L.	Louisville	KY		
Braun; Edwin R.	Jeffersontown	KY		
Hall, Jr.; Edwin M.	Louisville	KY		

US-CL-CURRENT: 134/25.2; 134/30, 134/36, 134/57D, 134/95.2

ABSTRACT:

A method of cleaning dishes, utilizing a dishwasher apparatus connected to both hot and cold-water lines, the method includes: beginning with one or more cold-water pre-rinses, then providing a hot-water wash, and, finally, concluding with one or more cold-water post-rinses and a last hot-water rinse. Drying then follows with air being circulated through the dishwasher wash chamber. The drying is aided by the residual heat of the dishes from the last rinse.

4 Claims, 1 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw De
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WEST Search History

DATE: Monday, March 06, 2006

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<input type="checkbox"/>	L12	L11 with (current detection)	0
<input type="checkbox"/>	L11	control\$ with dishwasher	1526
<input type="checkbox"/>	L10	control\$ with dishwasher	1526
<i>DB=PGPB,USPT; PLUR=YES; OP=ADJ</i>			
<input type="checkbox"/>	L9	L4 and (current detection)	1
<input type="checkbox"/>	L8	L4 and discontinu\$	10
<input type="checkbox"/>	L7	L4 and (electrical characteristic\$)	1
<input type="checkbox"/>	L6	L4 with (electrical characteristic\$)	1
<input type="checkbox"/>	L5	L4 with determin\$	2
<input type="checkbox"/>	L4	L2 with motor	112
<input type="checkbox"/>	L3	L2 with (wash motor)	1
<input type="checkbox"/>	L2	L1 with (driv\$ or operat\$)	563
<input type="checkbox"/>	L1	control\$ with dishwasher	1214

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Search Results - Record(s) 1 through 10 of 10 returned.

☐ 1. Document ID: US 20040099287 A1

Using default format because multiple data bases are involved.

L8: Entry 1 of 10

File: PGPB

May 27, 2004

PGPUB-DOCUMENT-NUMBER: 20040099287

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040099287 A1

TITLE: Dishwasher control method and dishwasher using the same

PUBLICATION-DATE: May 27, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Shin, Dong Hoon	Changwon-si		KR

US-CL-CURRENT: [134/18](#); [134/25.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 2. Document ID: US 6432216 B1

L8: Entry 2 of 10

File: USPT

Aug 13, 2002

US-PAT-NO: 6432216

DOCUMENT-IDENTIFIER: US 6432216 B1

TITLE: Soil sensing system for a dishwasher

DATE-ISSUED: August 13, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Thies; Edward L.	Niles	MI		

US-CL-CURRENT: [134/18](#); [134/104.1](#), [134/172](#), [134/25.2](#), [134/56D](#), [134/57D](#), [134/58D](#)

ABSTRACT:

A soil sensing system is provided for a dishwasher having an interior wash chamber receiving soiled dishes wherein during a wash cycle wash liquid is sprayed throughout the wash chamber through an upper wash arm and a lower wash arm and

soils are collected in a soil collector. The soil collector includes a filter screen which is backwashed by the wash arm. A pressure sensor measures the pressure within the soil collector to provide an input which corresponds to the presence of soils. In order to improve the sensitivity of the pressure based soil sensing, the lower wash arm is deactivated. Deactivating the lower wash arm ceases the backflushing of the collection chamber's filter screen and allows pressure to build within the soil collector in the presence of only light or oily soils. A response is activated if the actual pressure within the collection chamber is greater than a predetermined limit pressure. The response may consist of the addition of heat to the water, the addition of time to the cycle, the draining of soiled wash liquid, the addition of detergent or possibly the addition of a wetting agent.

22 Claims, 4 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Drawings	Claims	KMC	Draw. D.
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☐ 3. Document ID: US 5280227 A

L8: Entry 3 of 10

File: USPT

Jan 18, 1994

US-PAT-NO: 5280227

DOCUMENT-IDENTIFIER: US 5280227 A

TITLE: Electronic control for an appliance

DATE-ISSUED: January 18, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bashark; Larry T.	St. Joseph Township, Berrien County	MI		

US-CL-CURRENT: 318/751; 100/229A, 318/286, 318/455, 318/817

ABSTRACT:

An electronic control for a motor which eliminates the motor centrifugal switch and more particularly a control for a domestic refuse compactor which permits the user to control the approximate full trash bag weight and obtain more compaction from a split phase induction drive motor. A ferrite core sensor on the main winding of the drive motor samples the lagging phase angle of the motor main winding current during a compaction stroke. A low force cycle is achieved by terminating the stroke as soon as phase samples fall below a threshold defined at the start of each cycle by a locked motor main winding phase sample acquired prior to starting the motor. A medium force cycle terminates the stroke when compaction forces exceed the main winding breakdown torque. A high force cycle is achieved by re-activating a motor start winding when compaction forces exceed the main winding breakdown torque and terminating the stroke as soon as the phase samples exceed a threshold defined at the start of each cycle during motor starting. The control uses programmed referencing techniques to eliminate factory pre-calibration.

65 Claims, 27 Drawing figures
Exemplary Claim Number: 1

Number of Drawing Sheets: 17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn De
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☐ 4. Document ID: US 5038091 A

L8: Entry 4 of 10

File: USPT

Aug 6, 1991

US-PAT-NO: 5038091

DOCUMENT-IDENTIFIER: US 5038091 A

TITLE: Electronic control for an appliance

DATE-ISSUED: August 6, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bashark; Larry T.	St. Joseph Township, Berrien County	MI		

US-CL-CURRENT: 318/809; 100/229A, 318/280, 318/727, 318/751, 318/799, 318/817

ABSTRACT:

An electronic control for a motor which eliminates the motor centrifugal switch and more particularly a control for a domestic refuse compactor which permits the user to control the approximate full trash bag weight and obtain more compaction from a split phase induction drive motor. A ferrite core sensor on the main winding of the drive motor samples the lagging phase angle of the motor main winding current during a compaction stroke. A low force cycle is achieved by terminating the stroke as soon as phase samples fall below a threshold defined at the start of each cycle by a locked motor main winding phase sample acquired prior to starting the motor. A medium force cycle terminates the stroke when compaction forces exceed the main winding breakdown torque. A high force cycle is achieved by re-activating a motor start winding when compaction forces exceed the main winding breakdown torque and terminating the stroke as soon as the phase samples exceed a threshold defined at the start of each cycle during motor starting. The control uses programmed referencing techniques to eliminate factory pre-calibration.

79 Claims, 27 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 17

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawn De
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☐ 5. Document ID: US 4703306 A

L8: Entry 5 of 10

File: USPT

Oct 27, 1987

US-PAT-NO: 4703306

DOCUMENT-IDENTIFIER: US 4703306 A

TITLE: Appliance system

DATE-ISSUED: October 27, 1987

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Barritt; William D.	Greenfield	IN		

US-CL-CURRENT: 340/310.18; 340/3.21, 340/3.54, 340/3.71, 340/310.16, 340/538, 340/825.22

ABSTRACT:

An appliance system is provided having a plurality of appliances. A master controller includes the user-operable appliance controls as well as associated logic controls for controlling the operating components of the appliances. An interface control is physically associated with each controlled appliance and receives control signals for the various operating components from the master controller by way of power line transmission. The master controller effects a repeating sequence of transmitting and receiving control signals in the form of first and second data packages while the interface control effects a repeating sequence of receiving first data packages and transmitting second data packages. The interface control and the master controller will each interrupt operation of the appliances responsive to the absence of either first or second data packages.

12 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachments	Claims	KMC	Draw. De
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☐ 6. Document ID: US 4068114 A

L8: Entry 6 of 10

File: USPT

Jan 10, 1978

US-PAT-NO: 4068114

DOCUMENT-IDENTIFIER: US 4068114 A

TITLE: Heater safety control

DATE-ISSUED: January 10, 1978

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Johnson; Philip P.	St. Joseph	MI		
DeSchaaf; Clifford L.	Stevensville	MI		

US-CL-CURRENT: 392/441; 134/57D, 134/58D, 392/463

ABSTRACT:

A receptacle such as a dishwasher tub having an improved control for effecting

filling of the tub to a preselected full level and protecting the apparatus against undesirable overflow in the event the normal flow control malfunctions. The flow control includes a control valve having two valve elements for cooperatively preventing such undesirable overflow. One of the valve elements may be controlled by an electrically operated solenoid, and the other valve element may be controlled by mechanical control structure. In the illustrated embodiment, the electrically controlled valve element is controlled by a timer, and the mechanically controlled valve element is controlled by a float. A heater is provided for heating liquid in the tub and an improved control is provided for controlling the heater so as to prevent energization thereof whenever the sensed liquid volume in the tub is below a preselected minimum. Illustratively, the volume is sensed by a float sensing the level of liquid in the tub and connected to a switch of the control for selectively energizing the heater.

19 Claims, 9 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. Ds
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☐ 7. Document ID: US 3982552 A

L8: Entry 7 of 10

File: USPT

Sep 28, 1976

US-PAT-NO: 3982552
DOCUMENT-IDENTIFIER: US 3982552 A

TITLE: Thermal protection for dishwashing machine

DATE-ISSUED: September 28, 1976

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Fraula; Louis F.	Troy	OH		

US-CL-CURRENT: 134/57D; 134/107, 134/108, 236/1E

ABSTRACT:

A dishwashing machine having a gas-fired heater is provided with a flue structure having wall portions common to the tank and wash chamber of the machine. While the machine is running liquid splashes against these wall portions and exchanges heat therewith. When the water circulation system is stopped, the heater is limited to a standby condition which is predetermined to maintain these wall portions at substantially the same temperature as during running conditions.

3 Claims, 4 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. Ds
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☐ 8. Document ID: US 3949782 A

L8: Entry 8 of 10

File: USPT

Apr 13, 1976

US-PAT-NO: 3949782

DOCUMENT-IDENTIFIER: US 3949782 A

**** See image for Certificate of Correction ****

TITLE: Control circuit for dishwasher

DATE-ISSUED: April 13, 1976

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Athey; Stuart E.	Troy	OH		
Lee Vore; Alan	Franklin	OH		
Swihart; Donald E.	St. Paris	OH		

US-CL-CURRENT: 137/565.01; 361/730, 361/784

ABSTRACT:

An electrical circuit for controlling various functions in a plurality of dishwashers having common features of a washing chamber containing a quantity of washing solution, means for heating the washing solution, a temperature sensor arranged to respond to the temperature of the solution, a pump for circulating washing solution through a spray head, and an electric motor for driving the pump. The control circuit includes a plurality of circuit boards for controlling the sequence of operation of the dishwasher, overheating protection for the pump motor, and the means for heating the washing solution. Many circuit boards contain indicating lamps in the form of light emitting diodes to indicate proper operation of the circuit. Other circuit boards include optional features, such as automatic initiation of the washing cycle upon the closure of the door.

2 Claims, 8 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachment	Claims	KWIC	Draw. De
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☐ 9. Document ID: US 3911943 A

L8: Entry 9 of 10

File: USPT

Oct 14, 1975

US-PAT-NO: 3911943

DOCUMENT-IDENTIFIER: US 3911943 A

**** See image for Certificate of Correction ****

TITLE: Control circuit for dishwasher

DATE-ISSUED: October 14, 1975

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Athey; Stuart E.	Troy	OH		
Vore; Alan Lee	Franklin	OH		
Swihart; Donald E.	St. Paris	OH		

US-CL-CURRENT: 137/341; 417/32

ABSTRACT:

An electrical circuit for controlling various functions in a plurality of dishwashers having common features of a washing chamber containing a quantity of washing solution, means for heating the washing solution, a temperature sensor arranged to respond to the temperature of the solution, a pump for circulating washing solution through a spray head, and an electric motor for driving the pump. The control circuit includes a plurality of circuit boards for controlling the sequence of operation of the dishwasher, overheating protection for the pump motor, and the means for heating the washing solution. Many circuit boards contain indicating lamps in the form of light emitting diodes to indicate proper operation of the circuit. Other circuit boards include optional features, such as automatic initiation of the washing cycle upon the closure of the door.

6 Claims, 8 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 10. Document ID: US 3844299 A

L8: Entry 10 of 10

File: USPT

Oct 29, 1974

US-PAT-NO: 3844299

DOCUMENT-IDENTIFIER: US 3844299 A

**** See image for Certificate of Correction ****

TITLE: CONTROL CIRCUIT FOR DISHWASHER

DATE-ISSUED: October 29, 1974

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Athey; Stuart E.	Troy	OH		
Vore; Alan Lee	Franklin	OH		
Swihart; Donald E.	St. Paris	OH		

US-CL-CURRENT: 134/57D; 134/113

ABSTRACT:

An electrical circuit for controlling various functions in a plurality of dishwashers having common features of a washing chamber containing a quantity of

washing solution, a heater element for heating the washing solution, a temperature sensor arranged to respond to the temperature of the solution, a pump for circulating washing solution through a spray head, and an electric motor for driving the pump. The control circuit includes a plurality of circuit boards for controlling the sequence of operation of the dishwasher, overheating protection for the pump motor, and the heater element. Many circuit boards contain indicating lamps in the form of light emitting diodes to indicate proper operation of the circuit. Other circuit boards include optional features, such as automatic initiation of the washing cycle upon the closure of the door.

2 Claims, 8 Drawing figures
 Number of Drawing Sheets: 5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachment	Claims	KWIC	Draw. Desc.
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DISCONTINUANCE-DEPRESSING	1
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